

The Square Knot

Volume 2 Issue 3
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A publication to join in a partnership, with our
customers, for world class healthcare



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Questions?!

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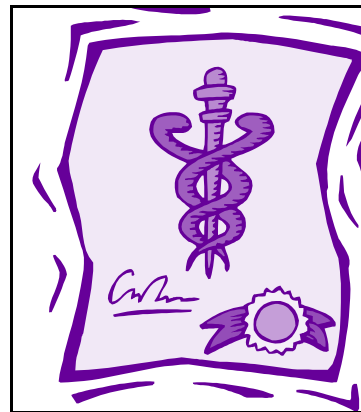
The Certificate of Need Process

Certificate of Need (CON) is a permitting type process that health care facilities must undergo before starting certain types of construction, expansion or service development projects. Its goals are to: 1) allow the development of new services & facilities in an orderly way that allows for competition to occur within a planning area but doing so without destabilizing the existing system; 2) approve projects that have a reasonable chance of succeeding financially without causing unusually high rates; 3) approve those projects where the applicant does not have a known record of providing poor quality. We look at not only an applicant's history in Washington but also in other states where they do business; and 4) approve those projects where there is no better alternative. This takes into consideration the expected impact an approval will have on the existing providers.

Washington State passed its first Certificate of Need (CON) law in 1971 at a time when concerns about increasing health care costs began to be an issue. The original statute regulated only hospital and nursing

home construction in excess of \$100,000. Over the years changes have been made that have either contracted or expanded the scope of CON review coverage. Today the following projects are subject to CON review.

- ◇ Construction, development or other establishment of new health care facilities
 - Ambulatory Surgical Centers. There is a limited exemption for centers within a medical practice.
 - Kidney Dialysis Centers
 - Hospice Care Centers
 - Hospitals
 - Medicare Certified Home Health Agencies
 - Medicare Certified Hospice Agencies
 - Nursing Homes
 - Any increase in the number of kidney dialysis treatment stations
- ◇ Sale, purchase, or lease of all or part of an existing hospital, regardless of profit/non-profit status
- ◇ Any increase in the number of licensed beds at a hospital or nursing home



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Cooling Elevator Machine Rooms

Uniform Building Code Section 3005

3005.1 Operation of Solid-state Equipment. When solid-state equipment is used to operate the elevators, the elevator equipment room shall be provided with an independent ventilation or air-conditioning system to prevent overheating of the electrical equipment. The operating temperature shall be established by the elevator equipment manufacturer's specification. When standby power is connected to elevators, the machine room ventilation or air conditioning shall be connected to standby.

For many years, cooling for elevator machine rooms was not taken very seriously. Cooling usually consisted of a small exhaust fan controlled by a make-on-rise thermostat. The exhaust fan pulled air from an adjacent corridor under the machine room door and exhausted it to the outside. Depending on the fan sizing, and equipment heat output, the elevator machine room temperatures frequently hit 100°F. - 120°F. In the era of relay-controlled elevator controllers, the equipment usually tolerated these temperatures because the equipment was usually supplied with a separate hydraulic oil cooler that limited the temperature of the hydraulic oil, this limited the variations in oil viscosity.

With the introduction of microprocessor-based control systems, serious temperature limitations were imposed on the elevator machine room. Temperatures that were easily tolerated by the mechanical components caused the elevator to operate erratically, such as: lock-outs, erratic stops and starts and other problems become apparent. The hydraulic oil coolers that were used on older machines were eliminated by most manufacturers and became an integral part of the hydraulic receiver. This increased the heat gain to the machine room and increases variations in viscosity of the hydraulic fluid. As the viscosity of the hydraulic oil changes, the device that stops the car at the proper point to align with the floor cannot consistently stop the car at the proper level and the car stops a few inches above or below the proper level, creating a serious

tripping hazard to people entering and exiting the elevator.

These problems were recognized by the elevator code committee of ICBO and section 3005 was added to the code several years ago. Unfortunately, some jurisdictions do not enforce Chapter 30 - they assume the elevator inspectors for the Department of Labor and Industries (L&I) perform this inspection and they don't need to duplicate their inspection. The problem is that L&I enforces the elevator code - ASME 17.1, not the Uniform Building Code, so the requirement for cooling with an independent cooling system is often missed by the local building inspector.



Construction review has been working with designers, owners and the elevator inspection division of L&I for the last year to upgrade cooling for these critical machinery spaces. We have discovered that in nearly every case, ventilation air is inadequate for cooling the machine rooms. Every major manufacturer of elevators we have contacted requires a temperature of no more than 90°F. in the elevator machine

room. The 90° temperature is an upper limit, so when designing a system using ventilation air from outside the temperature may never exceed this value. When using the ASHRAE Outdoor Design Temperatures for Washington State, the summer dry bulb 0.1% column should be used for the temperature of cooling air - in Seattle and Tacoma the .1% value is 88°F or higher, making the outside air impractical for cooling to 90°. Nearly every site in Eastern Washington has 0.1% values above 90°F. Some designers have proposed using air from inside an air-conditioned building as a source of cool air - unfortunately, these systems do not provide an independent source of cooling.

We recommend providing new elevator machine rooms with a small split-system air-conditioner set to maintain 86° F and sized to handle the peak cooling loads generated by the equipment. Providing an over-temperature alarm, connected to a warning light, buzzer or the building automation system, provides a good back-up.

-Bill Kingrey

B vs. I occupancies in Hospitals

Construction Review Services is often asked the advantages and disadvantages of designing spaces within or attached to hospitals as 'I' versus 'B' occupancies. One might think that the Uniform Building Code's 'B' occupancy requirements are less stringent. However, when you consider egress that isn't always the case. Due to the use and character of the buildings they are limited to the types of construction in table 5-B and 904.2.7 requiring the building to be sprinkled. These two factors allow the buildings egress to be far less stringent than in a 'B' occupancy. Several sections of the building code allow exceptions in 'I' occupancies that are not allowed in 'B' occupancies. For instance, several can be found in Section 1007.5.4 of Uniform Building Code where several modifications to the requirements for corridors have been made. Nurse stations and areas used for charting are allowed to be open to the corridor. Waiting rooms can be open to the corridors provided there is less than 600 square feet in each smoke compartment, and smoke detection and visual supervision is provided. Door closers to sleeping rooms and treatment rooms are not required in corridors of 'I' occupancies. The amount of relights in corridor walls are not limited in size as long as wire glass is used and each panel of glazing does not exceed 1,296 square inches. The last exception allows doors in corridor walls that are only required to be rated by section 1004.3.4.3.2.1 to forego the rating as long as it has a closer and smoke seal (unless it's a sleeping or treatment room)- also called a smoke and draft control assembly.

Another advantage of 'I' occupancies is the introduction of suites. A suite has to be separated from the rest of the building by a one-hour occupancy separation but can eliminate dozens of fire-smoke dampers and door closers that are not required within the suite. Suites are limited in size but with careful planning can be quite advantageous to the designer considering that there are no requirements for rated corridor walls within the boundaries of the suite.



'B' occupancies have a similar exception that allows areas with an occupant load less than 100 to not have rated corridors. Generally with the size of departments these days very rarely does an un-rated corridor prove to be advantageous to a designer.

The width of corridors can vary in an 'I' occupancy. In areas that do not serve patient care areas then the code allows 44" corridors - in surgical areas 6'-0" is acceptable. Of course in patient care areas where movement of gurney's is expected 8'-0" is required. Special consideration should be taken in all areas of hospitals

towards corridor width. Contrary to popular belief, the width of a corridor is actually intended to allow a gurney to be turned 180 degrees.

A big consideration in the 'B' vs. 'I' occupancy dilemma is the future needs of the hospital. With technology rapidly changing it is difficult to tell what the hospital of tomorrow will look like. The prudent hospitals that design their

facilities as 'I' occupancies will be more flexible and therefore "ahead of the game" down the road.

-Chad Beebe

Rule interpretation...

Chapter 246-320 WAC-Hospitals

Q: How does the term "non-ambulatory" apply in an outpatient clinic setting?

A: This term as found in WAC 246-320-815(6)(f) is defined in WAC 246-320-010(65) applies to an individual who is "...physically or mentally unable to walk or traverse a normal path to safety without the physical assistance of another." If one or more patients meet the criteria for non-ambulatory per this definition, then the general design regulations found in WAC 246-320-525 apply.

Certificate of Need ... continued from page one

- ◇ Development of a new tertiary health service regardless of facility type
 - Level I Rehabilitation Programs
 - Open Heart Surgery
 - Organ Transplantation
 - Specialty Burn Services
 - Intermediate Care Nursery and/or Obstetric Services II
 - Neonatal Intensive Care Nursery and/or Obstetric Services Level III
 - Specialized Inpatient Pediatric Services
- ◇ For Nursing Homes Only, any capital expenditure exceeding the minimum 1 million dollar threshold (adjusted for inflation--currently 1.2 M)
- ◇ Nursing home bed banking transactions
- ◇ Nursing home Replacements

A standard CON review takes about six months and may include a public hearing so that we may hear from the community about either its support or concerns about a proposed project. Although at the present time it is taking longer than the six months we hope to begin reversing this trend with the addition of a new analyst targeted to be onboard in July.

As with other types of review processes, CON reviews do have a fee associated with them. CON fees currently range from \$411 for extension requests to \$24,667 for nursing home projects. Fees are based on the type of facility/project. When more than one facility/project type applies to an application, the review fee for each type of facility/project must be paid. For example, say a facility submitted an application to establish a Medicare home health and Hospice agency. The applicant would pay the review fee for a home health agency project and the fee for a hospice agency project. It should be noted that there is a proposal to increase CON fees to cover the expenses of the program. The new fees are expected to range from \$489 for extension requests to \$29,354 for nursing home projects.

CON staff is available to answer your questions about a particular type of project or about the review process in general. The CON staff currently consists of Randy Huyck and Karen Nidermayer, both analysts and myself, Janis Sigman the program manager. So just give us a call at (360) 705-6631 or we would be delighted to meet with you if that is your preference. -Janis Sigman

Tamper-resistant receptacles: What and Where?

One of the most common citations made during a hospital survey is tamper-resistant (TR) receptacles missing in areas where they are required. WAC 246-320-405 requires that hospitals "provide tamper resistant receptacles in waiting areas and where noted in Table 525-5 and WAC 246-320-99902(3)."

The National Electrical Code and the Department of Labor and Industries define a "tamper-resistant" receptacle as one that, "by its construction, limits improper access to its energized contacts." Typical TR receptacles use internal shutters to accomplish this. The web pages of several manufacturers, including Pass & Seymour, Leviton and Hubbell display hospital-grade TR receptacles with specs. The commercial catalogue of a large hardware chain carries these receptacles for less than \$9.00.

Cover plates designed to limit access to receptacles do not comply with the WAC. The National Electrical Manufacturer's Association says, "Applying commercially available covers and wall plates does not provide equivalent tamper resistance..."

Standard GFCI receptacles are not tamper-resistant, but a TR receptacle with a GFCI breaker provides both TR and GFCI functions in a wet location

WAC 246-320 Table 525-5 requires TR receptacles in all pediatric, psychiatric, detox, alcoholism and substance abuse areas, including corridors, as well as in nursing exam and emergency exam rooms. These are places where children or confused patients might be left unsupervised. The WAC also requires TR receptacles in all waiting areas. This includes lobbies, "sun rooms," "day rooms" and other places where visitors may wait in the hospital.

-Paul Throne

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Fire Alarm Plan Reviews

Construction Review Services (CRS) reviews fire alarm plans for systems that will be installed or modified in hospitals, nursing homes, boarding homes and other licensed facilities. The codes and standards that are applied include the WACS, UBC-Washington State Amendments, Uniform Fire Code, and National Fire Protection Association (NFPA) 72.

To assist CRS in this process, we need alarm contractors to route two sets of plans and specifications through the owner or architect. We will keep one approved set and return the other to the owner.



The submittal should include the following information:

1. Floor plan (to scale).
2. Location of all initiating and notification devices.
3. Cut sheets and specifications for all new equipment being installed.
4. Battery and voltage drop calculations (except relocation of devices only).
5. Panel information (new panel or system).
6. Zone list or device address list on addressable systems.
7. Name, address, and phone number of the alarm receiving company (new system).

When we review the plans, we are looking for compliance with applicable codes and standards. These are not always clearly spelled out so a certain amount of reviewer experience is applied to the review process.

The spacing of smoke or heat detectors, for example, is affected by location. Is it in an open room or a corridor? How close is the detector to the wall or HVAC supply and returns vents? Is all control equipment protected by detectors (fire alarm panels and remote power supplies). Finally, are egress pathways covered?

Manual pull stations should be located within five feet of each exit from every floor level, including non-required exits. In multi-story buildings, the pull stations should

be placed on the corridor side of the door to the stairway (the first floor pull stations can be located at the exterior doors). Pull stations may be protected with listed alarmed cover devices in areas subject to false alarms. In jail or prison occupancies, pull stations may be key operated or located only in staff attended areas.

Notification devices, including visual alarms, should be placed to meet ADA requirements. They include common use areas for clients, patients, and staff. Restrooms, conference rooms, training rooms, lounges and similar uses must be protected. Notification devices are not required in patient rooms of hospitals and nursing homes. Sleeping areas designated for ADA visual notification shall be provided with 110 candela strobes within 16 feet of the pillow placement.

Some special considerations as plans are designed include:

1. Local requirements may be more or less strict than the State depending on local ordinance,
2. Unsprinkled attics in smaller boarding homes will require heat detection,
3. Kitchen hood and fire sprinkler supervision must be provided, and
4. Smoke detection requirements for boarding homes is different than for hospitals and nursing homes.

If you have design questions please feel free to telephone Chad Beebe or Robert Bradley at Construction Review Services.

-Rob Bradley.

Rule interpretation.....Chapter 246-320 WAC-Hospitals

Q: How are door and corridor width requirements applicable in an outpatient clinic setting where all the patients are ambulatory?

A: Door and corridor width requirements only apply when an outpatient clinic is performing procedures that have the potential for rendering an individual non-ambulatory. Door and corridor width requirements located in that portion of WAC 246-320-525 General Design only apply if the clinic provides one or more of the services listed in WAC 246-320-815(6).

The Square Knot

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The Department of Health works to protect and improve the health of the people in Washington State

THE BACK PAGE

Next issue ...

The next issue of the Square Knot is October 2002.

Our deadline for articles is July 31, 2002.

Submissions should be about 350-450 words
CRS reserves the right to edit or publish articles.

E-mail your comments and articles to:
DOHFSLCRS@DOH.WA.GOV
Editor: John R. Templar, RS

The October issue will have information on:

Feng Shui Interior Design
Mobile Medical Unit Interpretation
Ergonomics in Healthcare

Visit our updated Website... You'll find:

- ◇ All RCW and WAC codes
- ◇ Our submissions guide
- ◇ Links to other agencies and web sites
- ◇ Down loadable applications and check lists
- ◇ Biographies of our plans reviewers
- ◇ An On-line Survey
- ◇ On-line project status

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Construction Review Services mission:

"Construction Review Services protects and improves the health and safety of people in Washington State by providing professional consultation and review for the design and construction of licensed or certified care facilities"